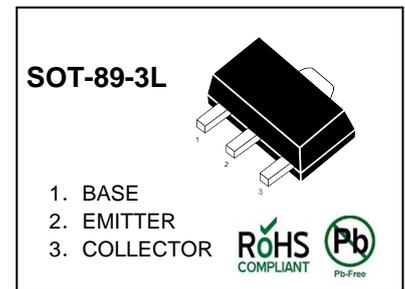


## NPN Silicon Epitaxial Planar Transistors

for general purpose, high voltage amplifier applications.

MARKING: G1



### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

| Parameter                 | Symbol    | Value         | Unit             |
|---------------------------|-----------|---------------|------------------|
| Collector Base Voltage    | $V_{CB0}$ | 180           | V                |
| Collector Emitter Voltage | $V_{CEO}$ | 160           | V                |
| Emitter Base Voltage      | $V_{EBO}$ | 6             | V                |
| Collector Current         | $I_C$     | 600           | mA               |
| Power Dissipation         | $P_{tot}$ | 500           | mW               |
| Junction Temperature      | $T_j$     | 150           | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{stg}$ | - 55 to + 150 | $^\circ\text{C}$ |

### Characteristics at $T_a = 25\text{ }^\circ\text{C}$

| Parameter   | Symbol                           | Min.           | Max.          | Unit        |
|---|----------------------------------|----------------|---------------|-------------|
| DC Current Gain<br>at $V_{CE} = 5\text{ V}$ , $I_C = 1\text{ mA}$<br>at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$<br>at $V_{CE} = 5\text{ V}$ , $I_C = 50\text{ mA}$ | $h_{FE}$<br>$h_{FE}$<br>$h_{FE}$ | 80<br>80<br>30 | -<br>250<br>- | -<br>-<br>- |
| Collector Base Cutoff Current<br>at $V_{CB} = 120\text{ V}$   | $I_{CB0}$                        | -              | 50            | nA          |
| Emitter Base Cutoff Current<br>at $V_{EB} = 4\text{ V}$   | $I_{EBO}$                        | -              | 50            | nA          |
| Collector Base Breakdown Voltage<br>at $I_C = 100\text{ }\mu\text{A}$   | $V_{(BR)CB0}$                    | 180            | -             | V           |
| Collector Emitter Breakdown Voltage<br>at $I_C = 1\text{ mA}$   | $V_{(BR)CEO}$                    | 160            | -             | V           |
| Emitter Base Breakdown Voltage<br>at $I_E = 10\text{ }\mu\text{A}$  | $V_{(BR)EBO}$                    | 6              | -             | V           |
| Collector Emitter Saturation Voltage<br>at $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$<br>at $I_C = 50\text{ mA}$ , $I_B = 5\text{ mA}$                                  | $V_{CE(sat)}$                    | -<br>-         | 0.15<br>0.2   | V           |
| Base Emitter Saturation Voltage<br>at $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$<br>at $I_C = 50\text{ mA}$ , $I_B = 5\text{ mA}$                                       | $V_{BE(sat)}$                    | -<br>-         | 1<br>1        | V           |
| Gain Bandwidth Product<br>at $V_{CE} = 10\text{ V}$ , $I_C = 10\text{ mA}$ , $f = 100\text{ MHz}$   | $f_T$                            | 100            | 300           | MHz         |
| Collector Output Capacitance<br>at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$  | $C_{ob}$                         | -              | 6             | pF          |

### Typical Characteristics

Fig.1  $P_{tot} - T_a$

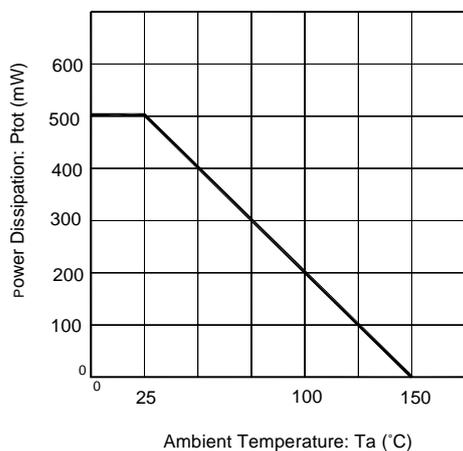


Fig. 2  $I_C - V_{BE}$

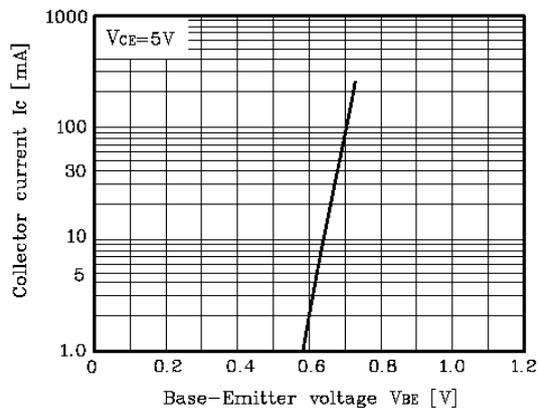


Fig. 3  $f_T - I_C$

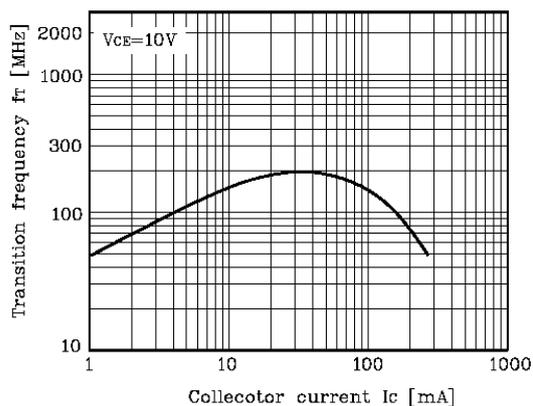


Fig. 4  $V_{CE(sat)}, V_{BE(sat)} - I_C$

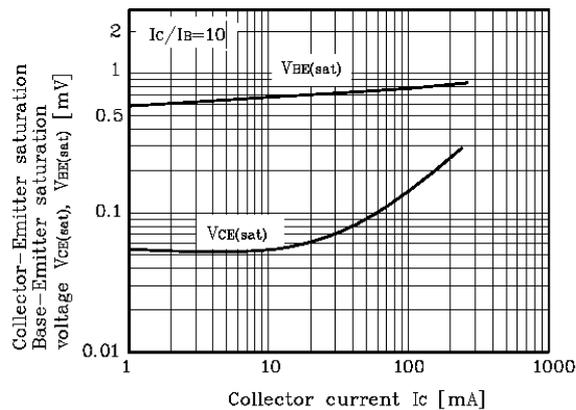
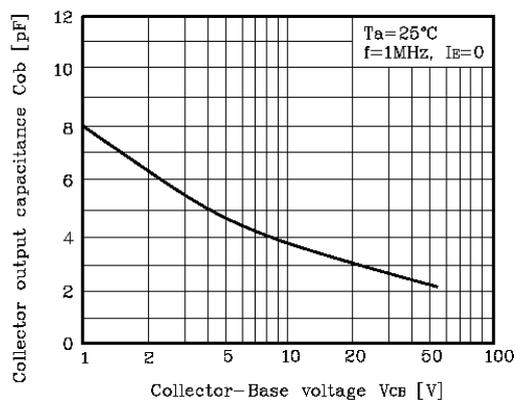
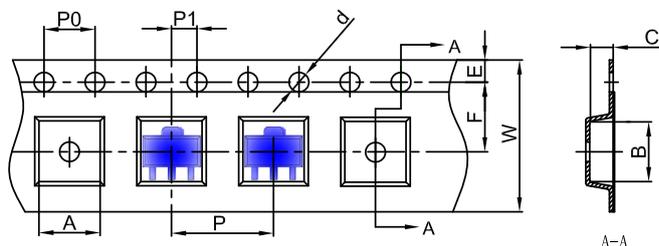


Fig. 5  $C_{ob} - V_{CB}$



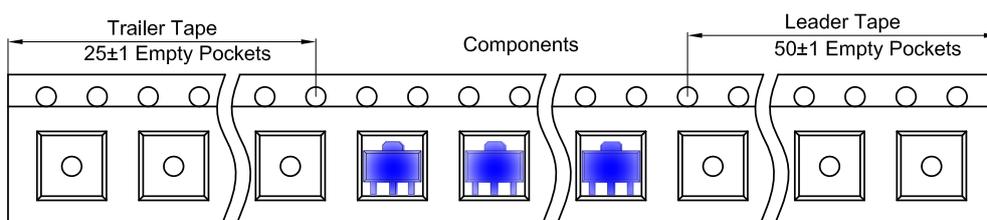
## SOT-89-3L Tape and Reel

### SOT-89-3L Embossed Carrier Tape

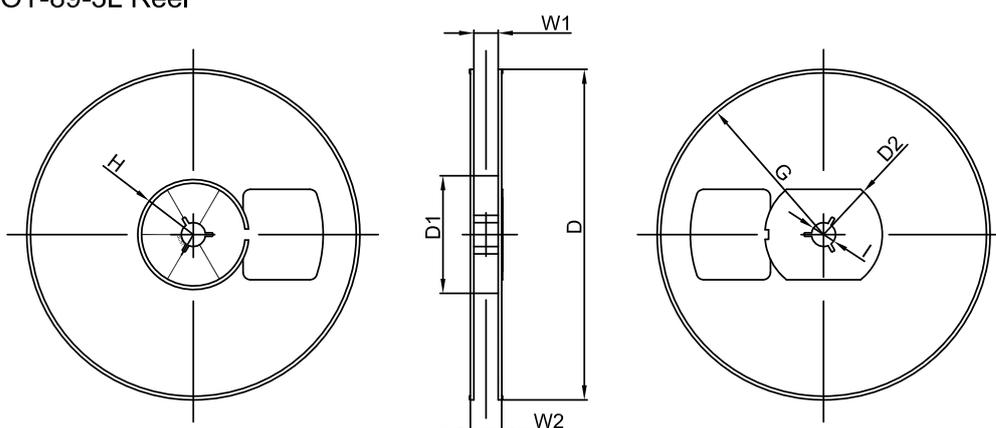


| Dimensions are in millimeter |      |      |      |       |      |      |      |      |      |       |
|------------------------------|------|------|------|-------|------|------|------|------|------|-------|
| Pkg type                     | A    | B    | C    | d     | E    | F    | P0   | P    | P1   | W     |
| SOT-89-3L                    | 4.85 | 4.45 | 1.85 | Ø1.50 | 1.75 | 5.50 | 4.00 | 8.00 | 2.00 | 12.00 |

### SOT-89-3L Tape Leader and Trailer

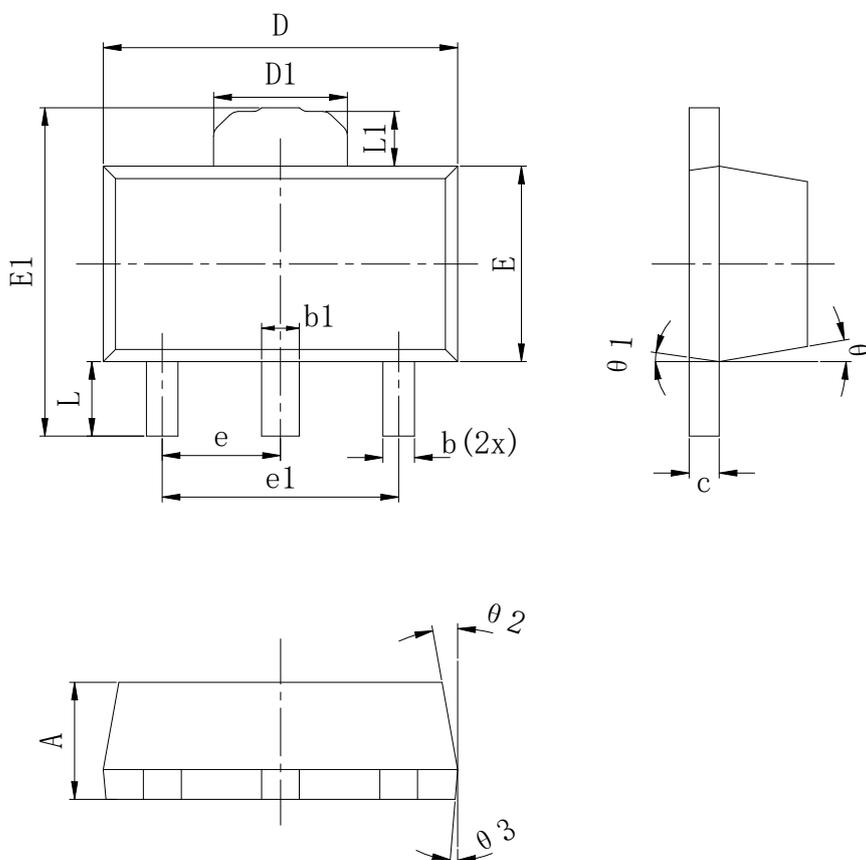


### SOT-89-3L Reel



| Dimensions are in millimeter |         |       |        |        |        |        |       |       |
|------------------------------|---------|-------|--------|--------|--------|--------|-------|-------|
| Reel Option                  | D       | D1    | D2     | G      | H      | I      | W1    | W2    |
| 7" Dia                       | Ø180.00 | 60.00 | R32.00 | R86.50 | R30.00 | Ø13.00 | 13.20 | 16.50 |

| REEL     | Reel Size | Box        | Box Size(mm) | Carton     | Carton Size(mm) | G.W.(kg) |
|----------|-----------|------------|--------------|------------|-----------------|----------|
| 1000 pcs | 7 inch    | 10,000 pcs | 203×203×195  | 40,000 pcs | 438×438×220     |          |



| SYMBOL     | MILLIMETER |       |       |
|------------|------------|-------|-------|
|            | MIN        | TYP.  | MAX   |
| A          | 1.400      | 1.500 | 1.600 |
| b          | 0.320      | 0.400 | 0.520 |
| b1         | 0.400      | 0.480 | 0.580 |
| c          | 0.350      | 0.381 | 0.440 |
| D          | 4.400      | 4.500 | 4.600 |
| D1         | 1.700REF   |       |       |
| E          | 2.400      | 2.500 | 2.600 |
| E1         | 4.050      | 4.200 | 4.350 |
| e          | 1.500TYP.  |       |       |
| e1         | 3.000TYP.  |       |       |
| L          | 0.800      | 0.950 | 1.200 |
| L1         | 0.700REF   |       |       |
| $\theta$   | 10° REF    |       |       |
| $\theta 1$ | 8° REF     |       |       |
| $\theta 2$ | 10° REF    |       |       |
| $\theta 3$ | 5° REF     |       |       |

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